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# AGRICULTURAL ENGINEERING

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UNITED STATES DEPARTMENT OF AGRICULTURE

WASHINGTON, D.C.

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December, 1941

## Accidents.

The accident barometer. Prepared by the Statistical Bureau  
National Safety Council. National safety news.  
v.45, no.2. February 1942. p.14-15.

## Agriculture.

Agriculture of Jamaica.... By Kathryn H. Wylie. Foreign  
agriculture. v.6, no.4. April 1942. p.121-  
146. Illustrations.

Annual report for fiscal year 1940-1941. Rio Piedras, Puerto  
Rico, 1941. 71p. University of Puerto Rico.  
Agricultural experiment station.

1942 farm legislation. By Arthur B. Jebens. Land policy  
review. v.5, no.3. March 1942. p.31-33.

The plow and the sword. Blacksburg, Va., n.d. 4p.  
Virginia. A. & M. college and Polytechnic institute. Agricul-  
tural extension division. Circular E-353.

## Air Conditioning.

How to figure duct sizes. By William Goodman. Heating,  
piping & air conditioning. v.14, no.2. February  
1942. p.107-110. New chart combines latest data  
for sizing both round and rectangular ducts.

Relationship of air conditioning to rust prevention. Lubrication.  
v.28, no.2. February 1942. p.13-24.

## Air Raid Protection.

Air raid shelter policy. Indian engineering. v.110, no.6.  
December 1941. p.144.

Brick masonry and other bomb shelters tested and compared by U. S.,  
Britain. Brick & Clay record. v.100, no.2.  
February 1942. p.31-33. Reinforced brick masonry air  
raid shelters prove successful under actual bombings in England.  
Gives specifications.

Air Raid Protection. (Cont'd.)

How bomb proof shelters are made.      Brick & clay record.  
v.100, no.3.      March 1942.      p.32,34,36.      Reports  
from London point out that REM construction offers minimum  
resistance to blast and splinters.      Descriptions are  
given for three types of shelters.

What makes a good bomb shelter?      By Col. George J. B. Fisher.  
Vital speeches of the day.      v.8, no.9.      February 15,  
1942.      p.285-286.

Alcohol Fuel.

Power alcohol.      Australian sugar journal.      v.33, no.9.  
December 11, 1941.      p.341.

Power alcohol from wheat.      Agricultural gazette of New South  
Wales.      v.52, no.9.      September 1, 1941.  
p.449-450.

'Second grade' power alcohol.      Australian sugar journal.  
v.33, no.9.      December 11, 1941.      p.341.      Sale  
of so-called second grade power alcohol in Melbourne.

Barns.

Is the run-type barn practical for Wisconsin?      In What's  
new in farm science. Part 1, annual report of the director  
Madison, Wis., 1941.      p.49-50.      Wisconsin.  
Agricultural experiment station. Bulletin no.453.

Open or closed dairy barns?      By E. E. Heizer and S. A. Witzel.  
Successful farming.      v.39, no.11.      November 1941.  
p.14-15, 28-29.

Brooders, Electric.

Electric brooder for pigs.      Successful farming.      v.40,  
no.3.      March 1942.      p.41.

Electric brooding: Tests and results.      By C. E. Lee.  
Everybody's poultry magazine.      v.47, no.1.      January  
1942.      p.6, 14-16, 25-26.      Observations on insulation  
qualities, current consumption, and ventilation conditions on  
eight types of electric brooders that were subjected to test.

Brooders, Electric, (Cont'd.)

Les éleveuses électriques. By W. J. Lavigne. Le bulletin des agriculteurs. v.38, no.3. March 1942. p.29.  
Electric brooders.

Building Construction.

Blister buildings: new constructional method. Indian engineering. v.110, no.6. December 1941. p.165.

Plotting the curve of building costs. Federal home loan bank review. v.8, no.6. March 1942. p.192-195.

Illustrations. Sharp increase in building costs causes mortgage lenders to keep watchful eye on their appraisal and mortgage lending standards. Despite general character of price advances, analysis shows large variance of trends for different building materials as well as considerable local variations. This serves to emphasize need for thorough study before changes in lending standards are made.

Building Materials.

Cement-sawdust mixture experience. Heard's dairyman. v.87, no.2. January 25, 1942. p.35.

Government, science, and industry search for substitute materials  
By Ruth C. Leslie. Domestic commerce. v.28, no.22.  
November 27, 1941. p.9-10.

Interlocking plastic strips replace metal trip. Scientific American. v.166, no.2. February 1942. p.80.  
Extruded plastic shapes are finding ever widening use in variety of applications where they replace metals. One of latest developments in this field is edging material. Illustrated is new strip form, produced in long lengths, locks into position without use of adhesive, screws or other means of attachment. Wherever slot of proper width can be provided, this "Interlox" section can be quickly and easily applied. When the material is pressed into place, barbs hold it in position. The material used in the "Interlox" strip is Tenite II, produced by the Tennessee Eastman Corporation.

New ways to save steel in concrete. Architectural record. v.91, no.2. February 1942. p.59-60. Illustrations.

Conservation of Resources.

A method of estimating the economic effects of planned conservation on an individual farm. By Arthur C. Bunce and George W. Collier. Washington, U. S. Govt. print. off., 1942. 28p. U. S. Department of agriculture. Miscellaneous publication no.463.

Soil moisture conservation. By R. E. Stephenson.  
California cultivator. v.89, no.3. February 7,  
1942. p.77.

Cotton Gins and Ginning.

Modernizing wooden gin stands for higher saw speeds, greater capacity and better sample. Stoneville, Mississippi, 1942.  
1p. U. S. Department of agriculture. Agricultural marketing service. Cotton ginning laboratory. ACE 137.

Crops (Drying).

Design new crop blower. In What's new in farm science. Part 1, annual report of the director. Madison, Wis., 1941.  
p.54. Wisconsin, Agricultural experiment station.  
Bulletin no.453.

Experiments with dried fruit in storage. By W. R. Barger.  
Ice and refrigeration. v.101, no.5. November  
1941. p.399-402.

Sweet potatoes dried on farm solves old problem. By L. M. Ware.  
Progressive farmer. v.56, no.12 December 1941.  
p.12, 52.

Dams.

General features of Friant Dam. Construction layout of an important unit in the Central Valley Project. By R. B. Williams.  
Civil engineering. v.12, no.2. February 1942.  
p.81-83. Illustrations. Friant Dam is well up in running among largest dams ever built. Located in foothills of High Sierras, it is important link in California's Central Valley Project. Shape of dam and surrounding topography dictated use of temporary steel-trestle type of construction plant. This plant, like cableway type, has been improved immensely in recent years over its early applications, and design now in use at Friant represents accumulation of good features gained from experience, combined with many outstanding details that are original with this project. Paper aims to cover construction features of undertaking.

Dehydration.

Why ship water? By J. C. Furnas. Country gentleman.  
v.111, no.10. October 1941. p.7. 44-45.  
Discussion of dehydration of foodstuffs.

Diesel engines.

A new theory of combustion in diesel engines. By  
Max G. Fiedler. Journal of the Franklin Institute.  
v.233, no.1. January 1942. p.17-39.

New theory of combustion in diesel engines. By Max G.  
Fiedler. Journal of the Franklin Institute.  
v.233, no.2. February 1942. p.143-171.

Drainage.

Automatic device to ensure permanently open mole drain outlets.  
By N. Lamont. New Zealand Journal of Agriculture.  
v.63, no.4. October 15, 1941. p.332-333.

Fields plowed in beds for drainage. Soil Conservation.  
v.7, no.9. March 1942. p.277.

Dryers and drying.

Seed drier uses infrared electric lamps. By John E. Nicholas  
and H. B. Musser. Agricultural engineering.  
v.22, no.12. December 1941. p.421-423, 426.

Electric lines.

Cost considerations in rural line design. By E. P. Weber,  
Electrical world. v.116, no.10. September 6, 1941.  
p.720-721, 723. Fifteen companies in five Midwestern  
states give cost and design information of typical rural lines.

Electricity on the farm.

Farmers helped to get electricity. In Security at the grass  
roots; a report of cooperative extension work in agriculture  
and home economics, 1940-41. Washington, D.C.,  
Govt. print. off., 1941. p.32.

Food to win the war must come from electrified farms.  
Rural electrification exchange. v.5, no.1.  
First Quarter, 1942. p.6-7. Louisiana Power & Light  
Company's Farm Service Program for 1942 will help its  
customers to win their battle for increased production.

Rural areas. By H. Greaves. Electrical review.  
v.129, no.3343. December 19, 1941. p.707-708.  
Post-war electrical development.

Engineering.

Engineering courses. By Henry S. Rogers. Mechanical engineering. v.64, no.3. March 1942. P.208-210.

Erosion Control.

Grasses in the conservation of soil and wildlife. By Edward H. Graham. Washington, D.C. 1941. 19p. Mimeographed U.S. Department of Agriculture. Soil conservation service.

Program of the United States Soil Conservation Service. By H. H. Bennett. International institute of agriculture. Monthly bulletin of agricultural science and practice. v.32, no.10. October, 1941. p.323T-330T. Program of United States Soil Conservation Service is explained. After short historical introduction dealing with creation of Service and its place amidst agencies of Federal Government, action on five different fronts: research, surveys and mapping, information and education, direct assistance to farmers, land purchase and development, is treated briefly in order to show part played by each of these branches in total program.

Security at the grass roots: A report of cooperative extension work in agriculture and home economics, 1940-41. Washington, D.C., Govt. print. off., 1941. 62 p.

Fans.

Exhaust fans. By K. G. Patrick. v.39, no.11. November 1941 Successful farming. p.30, 36.

How to apply fan test data. Part VIII Industrial power. v.42, no.3. May 1920. p.70-72, 106, 108. Instructions tell how to use fan test data for determining capacity and horsepower requirements under conditions different from tests. Also, fundamental laws of fan operation are explained and demonstrated.

Farm buildings.

Plans for concrete farm buildings. Chicago, Portland cement association, 1942. 56p.

Farm buildings, Remodeling.

Remodeling barns into laying houses. By John Vanderwort. Everybodys poultry magazine. v.47, no.2. February 1942. p.10-11.

Farm machinery and equipment.

Be sure you get repairs that fit and last. Montana  
farmer. v.20, no.13. March 1, 1942. p.6.

Case completes century of service to agriculture. Farm  
implement news. v.63, no.1. January 8, 1942.  
p.22-27, 54,56. Illustrations.

Combine drills. By W. H. Cashmore. Great Britain.  
Agriculture. Journal of the ministry of agriculture.  
v.48, no.3. December 1941. p.186-187.  
Disadvantages: (1) Combination of seed drill, which normally  
has long life, and fertilizer distributor, which has com-  
paratively high depreciation, may result in one part  
deteriorating more quickly than other. If, however,  
after each sowing season, fertilizer mechanism is  
completely dismantled, cleaned and oiled, this difficulty  
will be overcome. (2) Rate of seed drilling is slowed down  
because of extra time taken to fill fertilizer. This  
difficulty can be counteracted to some extent by  
having fertilizer placed just where it will be required  
in field. (3) Extra weight, compared with seed drill alone,  
causes uneven sowing depths, and there is risk of damage  
to drill chassis and axle. (4) Only granular fertilizer  
can be sown with any degree of accuracy, because of  
design of distributing mechanism.

Common binder head and knotter head troubles. By  
H. H. Musselman and A. J. Bell. East Lansing,  
Michigan, 1942. 14p. Michigan state college.  
Extension division. Extension bulletin no.134.

Farm equipment profits will be moderately lower. Magazine  
of Wall Street. v.69, no.9. February 7, 1942.  
p.494, 516

Field machines of 1942. Market growers journal.  
v.70, no.3. February 1, 1942. p.48-49  
Illustrations.

Getting set for war in the fields. By Glenn Adams.  
Western farm life. v.44, no.5. March 1, 1942.  
p.3,23.

The J. I. Case centennial. Northwest farm equipment journal.  
v.56, no.3. March 1942. p.23-24

Keep 'em rolling down on the farm. Utah farmer.  
v.61, no.13. February 25, 1942. p.10.  
10-point program on farm machinery repair outlined by war  
boards at county meetings.

Farm machinery and equipment. (Cont'd.)

Machinery in peanut production. By J. C. Oglesbee, Jr. and J. L. Shepherd. Agricultural engineering. v.23, no.1. January 1942. p.23-24.

Machinery patriotism means care and repair. By Hobart Beresford. Implement record v. 39, no. 2. February 1942. p.11,66. Timely tips for making equipment last longer.

Machinery repair vital. By Joe Crosby. California cultivator v.89, no.3. February 7, 1942. p.51,63.

Machinery's place in war. By Frank J. Zink. Implement & tractor. v.57, no.5. February 28, 1942. p.12-13. For labor to improve its efficiency in agriculture it must have machinery geared with it. It is only with machinery that labor can lay substantial claims to being more efficient.

OPM order provides rating for farm machinery, repair parts. Sugar bulletin. v.20, no.8. January 15, 1942. p.62-63. (Official release)

OPM regulations and recommendations. By DeWitt C. Wing. Dakota farmer. v.62, no.2. January 24, 1942 p.23. New order issued by the Office of Production Management guarantees supply of new farm implements to supplement equipment now on farms in production and harvest of 1942 crops.

Our farm forces require good equipment too. Oregon farmer. v.65, no.5. February 26, 1942. p.98-99. "Food will win the war and write the peace."

Points and parts of machinery wear. Wisconsin agriculturist and farmer. v.69. no.2. January 24, 1942. p.5.

Program for producion. Quotas for farm equipment have been determined by 1942 food goals and increasing need for war tools. Implement & tractor. v.57, no.2. January 17, 1942. p.16,20,22.

Program for repair for farm machinery. Maryland farmer. v.26, no.1. January 1942. p.16. Program for Maryland is getting well started.

Protect your farm machinery. California cultivator. v.89, no.3. February 7, 1942. p.62.

Farm machinery and equipment. (Cont'd.)

Repair of farm machinery. Washington, D. C. [n.d.].  
16p. Mimeographed. U. S. Department of agriculture.  
Bureau of agricultural chemistry and engineering. Division  
of farm mechanical equipment research. ACE - 143-150.

Urge 'all out' cooperation in National farm repair program.  
Utah farmer. v.61, no.13. February 25, 1942.  
p.3.

Utah farmers and ranchers have a big job to do in the year 1942.  
Utah farmer. v.61, no.13. February 25, 1942.  
p.4-5. War effects on farm machinery. Modern farm  
equipment vital in 'food for freedom' program.

Winter time is repair time. East Lansing, Mich., 1941.  
4p. Michigan. Agricultural extension division.  
Extension folder no.9.

Farm power.

Cost of oxen work lower in small farms. In annual report for  
fiscal year 1940-1941. Rio Piedras, Puerto Rico, 1941.  
p.23-24. University of Puerto Rico. Agricultural  
experiment station.

Farm power. By M. R. Cooper and A. P. Brodell.  
Agricultural situation. v.26, no.2. February 1942.  
p.11-12. Table 1. --Trends in farm employment and produc-  
tion, crop acres, workstock, and motor equipment, on  
farms, 1910-40).

Rural manpower and total war. By Glem T. Barton.  
Land policy review. v.5, no.2. February 1942.  
p.11-13. Full mobilization and use of all labor and  
resources will be needed to meet war-production goals during  
next 2 years. What are these production goals of total war?  
What part does rural manpower play in our effort to achieve  
them? What changes are in prospect for agricultural labor in  
the war years?

Women and tractors replace men and horses. By Francis  
Flood. Ohio farmer. v.189, no.3.  
February 7, 1942. p.10-11.

Food grinders and grinding.

Feed grinder demand to increase. Implement & tractor.  
v.56, no.23. November 8, 1941. p.14-15.

Feed preparation. By Colin Kennedy. Successful farming.  
v.40, no.3. March 1942. p.11, 28-29.  
Grinding or chopping feed.

Feed grinders and grinding.

Small feed mills do the job. Rural electrification news.  
v.7, no.6. February 1942. p.23-25.  
Two interesting stories of successful introduction of feed  
mills to farmers on cooperative lines.

Fences.

Frame your picture house with split rails. By Hi Sibley.  
Better homes & gardens. v.20, no.3. November 1941.  
p.102-103.

Fences, Electric.

Using electric fences to conserve labor and materials.  
Rural electrification exchange. v.5, no.1. First  
Quarter, 1942. p.16.

Fertilizer placement.

Fertilizer placement for sugar cane. In annual report for  
fiscal year 1940-1941. Rio Piedras, Puerto Rico, 1941.  
p.54. University of Puerto Rico. Agricultural experi-  
ment station.

Fibers.

American fibers--another material binding the Americas together.  
By Susan Lydia Bull. Foreign commerce weekly.  
v.6, no.6. February 7, 1942. p.6-7, 31-32.  
Bagging materials. Fibers for twine, rope, and marine  
cordage.

Surface characteristics of cotton fibers as indicated by  
electrophoretic studies. By Arnold M. Sookne and  
Milton Harris. Textile research. v.11, no.7.  
May, 1941. p.307-312.

Fire protection.

Flaming fluids. Fires in flammable liquids are vicious. Combating  
their menace requires an efficient program of plant pro-  
tection. By G. M. Kintz. National safety  
news. v.45, no.2. February 1942.  
p.22-23, 68-75.

Practical training for auxiliary firemen. By Fred Shepperd.  
Fire engineering. v.95, no.3. March 1942.  
p.134-137. Illustrations. First of a series of  
articles devoted to this important phase of national defense.

Fire protection. (Cont'd.)

Preventing farm fires. By the National Fire Protection Association. Board's Dairyman v.86, no.19. October 10, 1941. p.604.  
Fires from lightning; Fires from spontaneous ignition;  
Fires from matches and smoking; Fires from electricity;  
Fires from gasoline and kerosene; Fire protection.

Repairs can prevent fires. American lumberman. v.69, no.3226. March 21, 1942. p.16. Illustrations.

Flax.

Flax acreage must increase for 1942. Oil, paint and drug reporter. v.141, no.3. January 19, 1942.  
p.7, 41.

Floods and Flood control.

Research for flood control data. Many neglected sources will yield important information to the patient investigator. By Gustav E. Larson. Civil engineering. V.12, no.3. March 1942. p.131-134.

Floors.

Hollow floors for radiant heating. By F. E. Markus. Heating, piping and air conditioning. v.14, no.3. March 1942. p.176. Gives brief description of new type of floor construction which incorporates integral duct system.

Flow of heat.

Periodic heat flow in building walls determined by electrical analogy method. By Victor Paschkis. Heating, piping & air conditioning. v.14, no.2. February 1942. p.133-138. By new electric analogy method, heat flow through two building walls was investigated. In one case with 2-in. pine wall temperature-time curve on outside surface was known, while for other, 13-in. brick wall, amount of heat radiated from sun and temperature of surrounding air were known. In both cases, heat flow from inside surface to air in room, held at constant temperature, was desired. Results obtained checked closely with thermal measurements conducted at the Asive Research Laboratory.

Flow of water and gases.

Flow in expansions in open channels. By A. R. Thomas. Proceedings of the Punjab engineering congress. Lahore, Kapur art printing works, 1940. p.179-191r.  
Paper no.236.

Flow of water and gasses! (Cont'd)

Flow of fluids through orifices and weirs. In report of the research and extension activities of the engineering schools and departments for the sessions of 1940-1941.

Lafayette, Ind., 1941. p.11. Indiana. Purdue university. Engineering experiment station. Research series no.83. Purpose of research is to determine effects of density, surface tension, temperature, and viscosity upon discharge rate through small orifices and weirs.

Stream flow records of Pennsylvania. Harrisburg, 1940. 207p. Commonwealth of Pennsylvania. Department of forests and waters. Division of Hydrography.

Flumes.

Flow at high velocity in a curved rectangular flume. By Jeffrey B. Macphail. Civil engineering. v.12, no.3. March 1942. p.158-159.

Improved adjustable proportional neudles and open flume outlets. By Pandit K. R. Sharma. Proceedings of the Punjab engineering congress. Lahere, Kapur art printing works, 1940. p.193-223d. Paper no.237.

Investigation of an H-type flume. In report of the research and extension activities of the engineering schools and departments for the sessions of 1940-1941. Lafayetter, Ind., 1941. p.25. Indiana. Purdue university. Engineering experiment station. Research series no.83. Purpose: To study accuracy of orifice plate as sampling device used in connection with H-type flume for determining amount of sediment transported in open channels.

Rigid flume module. By K. A. Ghafeer. Indian engineering. v.110, no.3. September 1941. p.80-81.

Heat transmission.

New heat transmission calculation chart. By Walter Kals. Refrigerating engineering. v.42, no.5. November 1941. p.313-316.

Heating.

Air in contact with water. By William Goodman. Heating, piping and air conditioning. v.14, no.3. March 1942. p.169-172. Analyzing air conditioning and heat exchange processes with the psychrometric chart.

Heating. (Cont'd.)

Factors influencing the heat output of radiators. By A. C. Davis, W. M. Sawdon and David Dropkin. Heating piping and air conditioning. v.14, no.3. March 1942. p.180-186. Analysis is given of factors which affect heat output of radiators. It is clearly shown that conditions of test room can be varied very materially without affecting rating which radiator would be given when that rating is based on maintenance of defined temperature at fixed point in room. This temperature is specified to be measured by mercury thermometer, and it is interesting to note that temperature distribution in room can be varied widely and yet result in same radiator rating.

New tests reveal importance of prevention of radiant heat loss in maintaining human comfort. By F. O. Jordan. Air conditioning & refrigeration news. v.35, no.7. February 18, 1942. p.10, 11. Much lower air temperatures possible with reflective or cooled and heated wall surfaces.

Panel heating and cooling performance studies. By B. F. Raber and F. W. Hutchinson. Heating, piping & air conditioning. v.14, no.2. February 1942. p.125-132. Paper gives experimental data for feeling of warmth of 50 subjects in reflecting enclosure with air at 60 F and surfaces at 57 F, and with no heating other than that due to occupants. Investigation was made of surface emissivity and its practical significance in design and operation of any type of heating system.

Panel heating with hot air. By F. W. Hutchinson. Architect and engineer. v.146, no.3. September 1941. p.43-46.

Radiation as a factor in the feeling of warmth in convection, radiator and panel heated rooms. By F. D. Houghton, Carl Gutherlot and E. C. Hach. Heating, piping and air conditioning. v.13, no.12. December 1941. p.778-785.

Thermodynamic properties of air. By R. V. Gerhart, V. C. Brunmer, H. S. Mickley, B. H. Sage, and W. N. Lacey. Mechanical engineering. v.64, no.4. April 1942. p.270-272.

Wood burning furnaces better. By E. D. Marshall. Arkansas farmer. v.44, no.3. March 1942. p.9.

Hotbeds and cold frames.

Hotbed construction and management. By W. B. Ward.  
Lafayette, Ind., 1941. 8p. Indiana. Purdue  
university. Extension division. Extension bulletin no.270.

Houses.

Houses off the assembly line. Modern plastics. v.19,no.4.  
December 1941. p.36-37. Discussion of use of  
synthetic resin-bonded plywood and synthetic resin  
adhesives for prefabricated houses.

Low-cost homes. By Stephen H. Chalmers. St. Louis.  
Home Institute, inc., 1941. 39p.

Houses, Remodeling.

Farm home remodeling needed here to make this land productive.  
American lumberman. v.69, no.3222.  
January 24, 1942. p.18-19,25. Illustrations.

Structural economics in remodeling. Architectural record.  
v.91, no.2. February 1942. p.52-58.  
Illustrations show, 1. Foundation details; 21. Concrete  
floors; 3. Lumber floors; 4. Exterior walls; 6. Interior  
partitions.

Insulation.

You can enjoy greater winter comfort in your home and still  
use less fuel. By J. W. Simonds. Southern  
agriculturist. v.72, no.1. January 1942.  
p.30.

Irrigation.

Overhead irrigation. By H. M. L. International sugar  
journal. v.43, no.513. September 1941.  
p.268-269.

Irrigation water.

Irrigation water. The rate of application of irrigation to sugar  
cane. Annual report for fiscal year 1940-1941.  
Rio Piedras, Puerto Rico, 1941. p.54.  
University of Puerto Rico. Agricultural experiment station.

Laboratories.

A service institution. Du Pont magazine. v.36, no.1-2.  
February 1942. p.1-4, 23. Brief outline of  
activities in the technical laboratory of the Du Pont dye-  
stuffs division.

Laboratories. (Cont'd.)

The western regional research laboratory. By T. L. Swenson.  
Farm and home science. v.3, no.1. March 1942.  
p.12-13. The director of this new laboratory describes organization and objectives of research work dealing with new uses for apples, alfalfa, fruits, potatoes, poultry products and by-products, vegetables and wheat.

Lighting.

Choosing the right lamp for industrial lighting. By H. S. Broadbent. Machinery. v.48, no.6. February 1942. p.148-151. Table 3 gives comparison of total lighting costs for typical installation. Fig.1 shows comparison of illuminating costs elements for four types of lamps with power rate of 1 cent per kilowatt-hour.

Lubrication.

Bearings and lubrication. By R. J. S. Pigott.  
Mechanical engineering. v.64, no.4. April 1942.  
p.259-269. Bearing troubles traceable to design can be avoided by engineering study.

Nature of the lubrication process. Lubrication.  
v.28, no.1. January 1942. 12p.

Performance tests for greases. Power plant engineering.  
v.46, no.3. March 1942. p.82-83. While desirability of purchasing greases and other lubricants by specifications, based on performance or service, has long been recognized, laboratory tests of significant nature have been difficult to arrange. Work along this line done for navy shows considerable promise.

Milkhouses.

The dairyman builds a milkhouse. By Price Grieve.  
Successful farming. v.40, no.3. March 1942.  
p.24, 44-45.

The farm milkhouse. By Charles H. Reed. Lafayette, Ind., 1942. 3p. Indiana. Purdue university. Cooperative extension division. Leaflet no.155 (Revised).

Models.

Determining the deflection of structures with models.  
By William J. Emey. Civil engineering. v.12, no.3.  
March 1942. p.150-151.

Motor fuels.

Blending tractor fuel with gasoline Farm implement news.  
v.63, no.1. January 8, 1942. p.40.

Motor fuels. (cont'd.).

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Walls. (Cont'd.)

rectangular tank may be considered to act as plate with these idealized edge conditions, and it is only in such cases that this analysis applies. For tank that is square in plan and with heavy base, perfected fixity at sides and bottom would be closely approached. If one horizontal dimension is much greater than other, assumed edge conditions would not prevail. This analysis may be said to furnish solution for idealized case and designer must use judgement in applying results to particular problem.

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